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ABSTRACT

More of Britain's young people finish formal schooling earlier than in most other industrialized countries. This lack of formal educational attainment is not offset by higher than average vocational training in later years. The low level of education and training is not primarily the result of supply constrains, but is caused by a low level of demand for post-compulsory education among young people and employers. The demand for skilled labor is rising significantly faster than the demand for unskilled labor. The financial returns to postcompulsory education and training are mixed. Obtaining a degree or high vocational qualification generally enhances lifetime earning, but low-level vocational qualifications provide only a modest return. The role of family background and cultural factors is important. The higher the head of household's educational attainments and occupational status, the more likely a young man is to stay on to the advanced level. Although returns to education are higher for young people from less skilled households than they are for those from more skilled backgrounds, the demand of the less skilled for additional education is low. Policy can assist in increasing the levels of skills acquired. Coordination of the entire postcompulsory education and training system is essential. Young people will pursue training only if employers encourage them through their recruitment and wage policies. Reforms of vocational training should concentrate on skills that are valued in the workplace. Improved career guidance should present the lifetime earnings prospects from acquiring different qualifications. (YLB)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

LEARNING SHOULD PAY

by Robert Bennett, Howard Glennerster, Douglas Nevison

FOREWORD

In 1986 we undertook an internal study of BP's links with further and higher education in the UK. Among other things we sought to identify the three or four issues of concern to industry which should be the focus of a developing programme of support for the UK education service at this level.

The first issue we identified was that of "access and participation". We realised that the root of Britain's persistent worries about skill shortages lay in a failure to educate enough people to a high enough level. The second and third issues we called "relevance" and "teaching". Our perception was that it not only matters how many people we educate but that the nature of their learning and the processes by which they learn are also important.

As a result of this study BP subsequently launched a major initiative called "Aiming for a College Education", committing £3m over a five year period to the support of local projects designed to raise the aspirations of Britain's youngsters. We also set up a number of associated projects, exploring different aspects of the problem and its possible solutions. The research which led to the production of this report, by Bob Bennett, Howard Glennerster and Doug Nevison, with Nick Barr, continues the BP Programme.

The last few years have seen a surge both in demand for higher education and in 16 year old staying on rates. It would be tempting to assume that the problem has been solved, forgetting that we started from a low base, ignoring the effects of the recession - except to look askance at rising graduate unemployment and to wonder whether expansion was such a good idea after all - and turning a blind eye to the drop out rates at 17 and 18. It would be easy to allow the spotlight of popular attention to slip away.

It is important for the UK, and in the self-interest of employers in the UK, that we should not allow that to happen. We need to get to grips with the intricate tangle of relationships between demand, supply, the nature of the education and training product, its attractiveness to potential students and its currency in the labour market - to say nothing of its intrinsic usefulness, to the individual or to society!

Learning Should Pay looks at the economic and social influences on choices by young people at 16, 18 and beyond. Its purpose is to complement the more action-oriented projects in our portfolio with a major contribution to the research in this field. It offers some intriguing insights: how some people, who would appear to have so much to gain from further and higher education, fail to seize the opportunity; and how others, doubtless well motivated and patiently encouraged, strive for vocational qualifications which turn out to offer little or no return.

Britain still has some way to go. I hope this report will help.

Jeremy Nicholls
Education Adviser, BP

EXECUTIVE SUMMARY

Britain's skills crisis

Britain's education and training system is an inefficient and confusing mess. As a result, more of our young people finish formal schooling earlier than in most other industrialized countries. To make matters worse, this lack of formal educational attainment is not offset by higher than average vocational training in later years.

Successful economies have developed a high-skills, high-value-added industrial and commercial strategy. For Britain, the economic implications of not doing so are painfully obvious.

The British post-compulsory education and training system is already undergoing fundamental changes. To be successful, these changes will need to go even further. Young people, parents and employers must finally cease to believe that age-16 is the normal conclusion to an individual's education, and see education and training as a lifelong investment. Only when this is accomplished, will Britain be able to boast a skilled workforce comparable to any in the world.

Important questions

In addressing this critical issue, we ask three questions about **causes** and **policy**:

- Why do so few young people in Britain stay on in full-time education or vocational studies beyond age-16?
- What policies would increase participation?
- What changes can be stimulated by government and industry?

Key findings

Britain's skills crisis is nothing new. Governments have long-struggled to increase the number of educated and trained people in Britain in the hope of boosting the country's economic performance. Public policy has been almost exclusively concerned with expanding the supply side of the education and training system. However, we find that the problem lies more with **deficient demand** for post-compulsory education and training among young people and employers.

The demand for skilled labour is increasing. But this paper demonstrates that many young people are quite rational in not pursuing training — it does not give them great enough reward. We find that the financial returns to post-compulsory education and training are mixed. Staying-on and obtaining a degree or a high level vocational qualification does greatly enhance an individual's lifetime earnings prospects. But low level vocational qualifications and, for many males, A levels provide only a modest return. In some cases, the return to training and education may even be negative.

Low participation in post-16 education and training in Britain reflects a combination of low returns, the perception that higher qualifications are difficult to obtain, and the impact of ingrained family and cultural attitudes. Young people may still be misinformed about the complex routes through education and training after school, and the different financial returns on offer. The problem is serious and deep seated, especially for children from less skilled households.

Action needed

In order to increase the level of skills acquired:

Government should:

- Switch attention to the incentives that affect young people's **demand** for education and training.
- Simplify the routeways to higher skill levels by **coordinating** post-compulsory education and training policy, treating the system as a whole, preferably within a single government department.
- Encourage young people, through an integrated post-compulsory training and education system, to choose routes that are most advantageous to them, not box them into the options that educators or training establishments think are best.

Employers should:

- **Reward**, through their recruitment and compensation policies, the skills and training they value.

Training providers should:

- **Improve** the quality of lower level training courses which have brought little financial reward to their consumers.
- **Expand** and **simplify** the routes into higher education.

Local education authorities and educational institutions should:

- **Improve** careers advice. The financial consequences of different career options, in terms of lifetime earnings,should be strongly presented to young people. The findings of this paper are part of the information required.
- **Reduce** the perceived risk and consequences of failing to secure a place in higher education. Integration of A levels with GNVQ would help, provided that this introduces a true "parity of esteem".
- **Keep doors open** for students who may make the wrong choice at age-16 or change their preferences.

BRITAIN'S SKILLS CRISIS

Britain's education and training system is an inefficient and confusing mess. As a result, we suffer from some of the lowest participation rates in post-compulsory education and training of any country in the industrialized world. Successful economies have developed a high-skills, high-value-added industrial and commercial strategy. For Britain, the economic implications of not doing so are painfully obvious.

This paper addresses questions about **causes** and **policy**:

- Why do so few young people in Britain stay on in full-time education or vocational studies beyond age-16?
- What policies would increase participation?
- What changes can be stimulated by government and industry?

The remainder of the paper is divided into five main parts:

- Is supply the main problem?
- The demand for skills.
- Recent changes in the market for skills.
- Does education and training pay?
- Is money enough?
- Policy implications.

Table 1: Recent policy initiatives in education and training

Initiative	Description
Further education and training	
Youth Training Scheme (1983) (YT)	Provides two years of work-related training, including at least 13 weeks off-the-job training or relevant further education, for 16 year old school leavers, and one year of training for 17 year olds. Participants receive placement guarantee and maintenance allowance.
Certificate of Pre-Vocational Education (1985) (CPVE)	Aimed at young people who wish to continue in full-time education after age-16 to prepare for either work or vocational courses. Includes a period of work experience.
Technical and Vocational Education Initiative (1987) (TVEI)	Provides a mixed general and vocational education for 14 to 18 year olds. Participants take available vocational and academic qualifications.
Advanced Supplementary Exams (1987)	Equivalent to one half of an A level in terms of content. Aim to broaden the range of post-16 study.
Youth Social Security Benefits (1989)	Withdrawn for young people not enroled in an authorized training programme.
Training Credits Scheme (1991)	Limited programme providing young people with an entitlement to purchase training from employers or training centres. National system of training credits will replace YT by 1996. Vouchers worth £2,000 and £1,000 will entitle every 16 and 17 year old to education and training aimed at NVQ II or its academic equivalent.
National Vocational Qualifications (1992) (NVQs)	Aim to implement a comprehensive system of vocational qualifications based on five levels of achievement.
Advanced Diploma (GNVQs)	Awarded for satisfactory performance in A Levels, or in NVQ IIIs, or in a mixture of the two. Aim to create parity of prestige between vocational and academic education.
Higher education	
Education Reform Act (1988)	Introduction of competitive bidding among universities for student places. Aim to increase number of student places by lowering unit costs.
Top up Loans (1989)	Introduction of student top up loans to supplement lower real grants.
New funding arrangements (1991-92)	Separate finance of teaching and research, and incentives to expand places in higher education.

IS SUPPLY THE MAIN PROBLEM?

Britain's skills crisis is nothing new. Governments have long-struggled to increase the number of educated and trained people in Britain in the hope of boosting the country's economic performance. But public policy has largely been concerned with expanding the supply side of the education and training system through new youth training schemes, the content of schooling, and, now, expanded higher education (see Table 1).

In many ways the results have been disappointing. True, by 1990 the proportion of 16-18 year olds in full-time education or training topped 50 per cent for the first time — double the proportion in 1974. But much of the increase happened at the low skills end of the market. The increase in the proportion of 16-18 year olds in full-time education has been steady but unspectacular over the period, with particularly sharp increases coming only after 1987. Other countries have done much better. Among 16-18 year olds, we still have one of the lowest participation rates in the industrialized world. Why?

Supply of 16-19 year old places is not a major constraint

One explanation might be that education and training places or opportunities have been constrained. However, the supply of places for 16-19 year olds in sixth forms of schools and in further education colleges is largely demand led. There is evidence of supply constraints for specific courses at some further education colleges, but it is difficult to know whether these discourage individuals from pursuing further education altogether or simply displace them to other colleges and other courses, or delay entry. School leavers seeking general vocational training are guaranteed a place on YT. Though low ability students may be discouraged in various ways and placement may be delayed in some regions, in general, it is not the supply of courses or places that is the problem, in our view.

Supply of higher education places has been constrained

In contrast, participation rates in higher education in the 1980s **have** been very sensitive to the supply of places. In 1988, applicants to higher education as a whole outstripped acceptances by a ratio of two to one, although figures differ significantly by subject and institution[1]. Aside from limiting the number of young people participating in higher education directly, these supply restrictions may have influenced 16 year-olds' staying-on decisions by reducing their perceived chances of eventually reaching higher education. But again, in the last two years, the government's changed funding policy has encouraged universities and the former polytechnics to expand their number of places substantially.

Some improvements in supply have been disappointing

If young people desire additional education or training, there are very few overt institutional barriers now standing in their way. Even so, changes to the supply side of the system have certainly proved somewhat disappointing. Much of the overall rise in 16-18 year old participation rates has come from the introduction of the Youth Training (YT) scheme. Participation has been encouraged through placement guarantees and enforced financial incentives. Social security benefits for young people not enroled in an authorized training programme were withdrawn in 1989. YT trainees also receive a subsistence allowance which, though modest in absolute terms, is much greater than the Child Benefit paid to parents of young people who remain in school or transfer to an FE college. However, YT has been heavily criticized for its poor skill content — the emphasis being on job placement rather than the accumulation of tangible skills — and there is evidence that the existence of YT, by distorting individual choices between school and training, has significantly depressed school staying-on rates[2]. From an efficiency perspective, this policy can only be justified if the economic gains to general vocational training exceed those for academic studies. As we shall see, in most cases they do not.

But supply is not the main constraint

In our view, the supply side problem has now largely been solved, at least in quantitative terms. It is not a lack of places or schemes that is at fault. This study therefore shifts the debate and looks at young people's demand for education and training. This is influenced by:

- The financial returns that a young per son might reasonably expect from the decision to stay on or pursue a vocational qualification.
- Individual preferences and the endur ing importance of family background and parents' influence.

We address each separately below.

Key Finding:

Except possibly in higher education, there is currently no substantial supply bottleneck in post-compulsory education and training

THE DEMAND FOR SKILLS

The demand for skills is vital. Both individuals and employers demand skills to achieve their corporate and personal goals. They judge what level of skills they want to pay for or acquire, and base their judgements on the returns these skills produce — either in terms of higher output or profits, or increased wages.

Costs and benefits of education and training decisions are weighed by each individual

The financial returns to skills cannot be judged from the initial salary at recruitment alone. Returns should be judged over a lifetime of earnings. This captures the full benefit to the individual. It is also a measure of the weight employers place on individual skills. Looking solely at earnings differentials also ignores the cost of pursuing a post-compulsory qualification. The decision to pursue further education or vocational studies is a decision in which the costs and benefits of competing options are compared.

For an average 16 year old, survey evidence suggests that young people are well aware of the difference in earnings and employment prospects that flow from staying in school, and, moreover, that the perceptions of young people conform very closely to the actual experiences of graduates[1]. In deciding whether to stay on, a qualified 16 year old compares their perception of the lifetime earnings stemming from A levels (or, perhaps, higher education) and the earnings that can be obtained from the GCSE qualifications that he or she already has. Decisions such as these are being made by people all the time. To analyze them needs a more comprehensive framework for evaluating alternative costs and benefits between training and/or schooling options.

Costs and benefits have to be evaluated over a lifetime

Just as the benefits of investment in physical capital can be demonstrated with simple cost-benefit analysis techniques, so also can the profitability of competing training and education alternatives. To be comparable with each other, lifetime earnings streams must be discounted to a common point in time, since the costs and benefits of each alternative occur at different ages and stages of career development. An individual's decision will reflect the level of borrowing rates in the economy and his or her rate of time preference for income; that is, how the individual values immediate compared to future earnings. An individual who places greater weight on relatively immediate earnings has a high personal rate of discount. In contrast, an individual who is relatively indifferent between immediate and future earnings has a low personal rate of discount.

Different education and training options offer different expected lifetime earnings

In choosing between different education and training alternatives, an individual is likely to choose that option that offers the highest present value of lifetime earnings. The difference between options can be calculated. Similarly, we can calculate the rate of interest which equates the expected benefits of an alternative to its costs. This is commonly referred to as the internal rate of return. An investment is profitable to an individual if the expected internal rate of return exceeds the person's discount rate. In the analysis that follows, we use both these concepts to evaluate various post-compulsory education and training options.

Benefits include pecuniary returns, such as enhanced lifetime earnings or a lower probability of unemployment, as well as non-pecuniary rewards, such as improved job satisfaction and the enjoyment of learning itself. Costs include both direct expenditures on tuition fees, books or relocation expenses, and, more importantly, the indirect loss of forgone earnings. The rate of return may also reflect perceptions of risk in actually obtaining the higher qualification or the higher earnings.

Personal preferences vary

Finally, the private demand for education and training after compulsory school age is not solely influenced by expected returns. It also reflects family and cultural factors that affect individuals' perceptions of the worth and appropriateness of education. Thus, schooling and training decisions involve both personal consumption and investment considerations.

RECENT CHANGES IN THE DEMAND FOR SKILLS

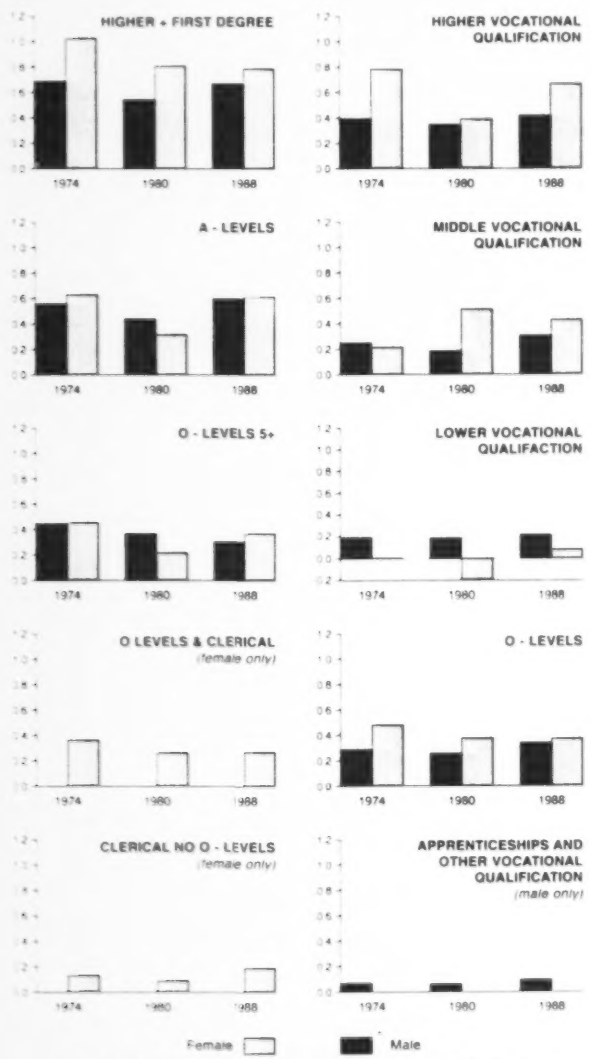
Individuals with post-compulsory education or training generally earn more over their lifetime than those who do not; and participation rates seem to respond positively to the size of this earnings differential over time[4].

The additional earnings associated with further education or training changes over time, responding to shifts in the relative demand for, and supply of, skilled labour (see Figure 1[5]). Following the narrowing of earnings differentials in the late 1970s, the 1980s labour market increasingly rewarded those with higher qualifications — the higher the qualification, the higher the reward. The additional earnings paid for low level vocational qualifications remained relatively small over the 1980s. For example, for males with apprenticeships there are low financial rewards, and this has changed little over the past two decades.

The pattern in Britain largely mirrors that in the U.S.A. where the additional earnings paid to skilled workers compared to the unskilled have increased significantly since the late 1970s[6]. This suggests a substantial rise in the relative demand for skilled labour, which more than offset the long-term increase in the relative supply of skilled labour. This change may reflect a sectoral shift toward services and away from traditional manufacturing, and/or a general shift towards the use of higher technology inputs. These earnings differences have increased most for those people whose qualifications offer skills relevant to the expanding service sector, and have increased least for those associated with traditional manufacturing.

Where the experience of the U.S.A. and Britain diverge is in the earnings of unqualified workers. In the U.S.A., the downward shift in the relative demand for unskilled workers has been associated with a sharp decline in their real wages as well as a small increase in their unemployment. In Britain, the opposite appears to have occurred: the wages paid to unskilled workers have actually increased, in real terms, despite large increases in unemployment. This anomaly may help to explain Britain's relatively low participation rates in post-compulsory education and training. If wages remain high for low and unskilled jobs, why should any one bother to obtain further training!

Figure 1 Education Earnings Differential, 1974 - 1988
Full-time employees, evaluated after twenty years experience



Source: Schmitt, John T. "The Changing Structure of Male Earnings in Britain, 1971-1988", in R. Freeman and L. Katz (Eds.), Changes and Differences in Wage Structures

Key Finding:

The demand for labour is rising significantly faster than the demand for unskilled labour

DO EDUCATION AND TRAINING PAY?

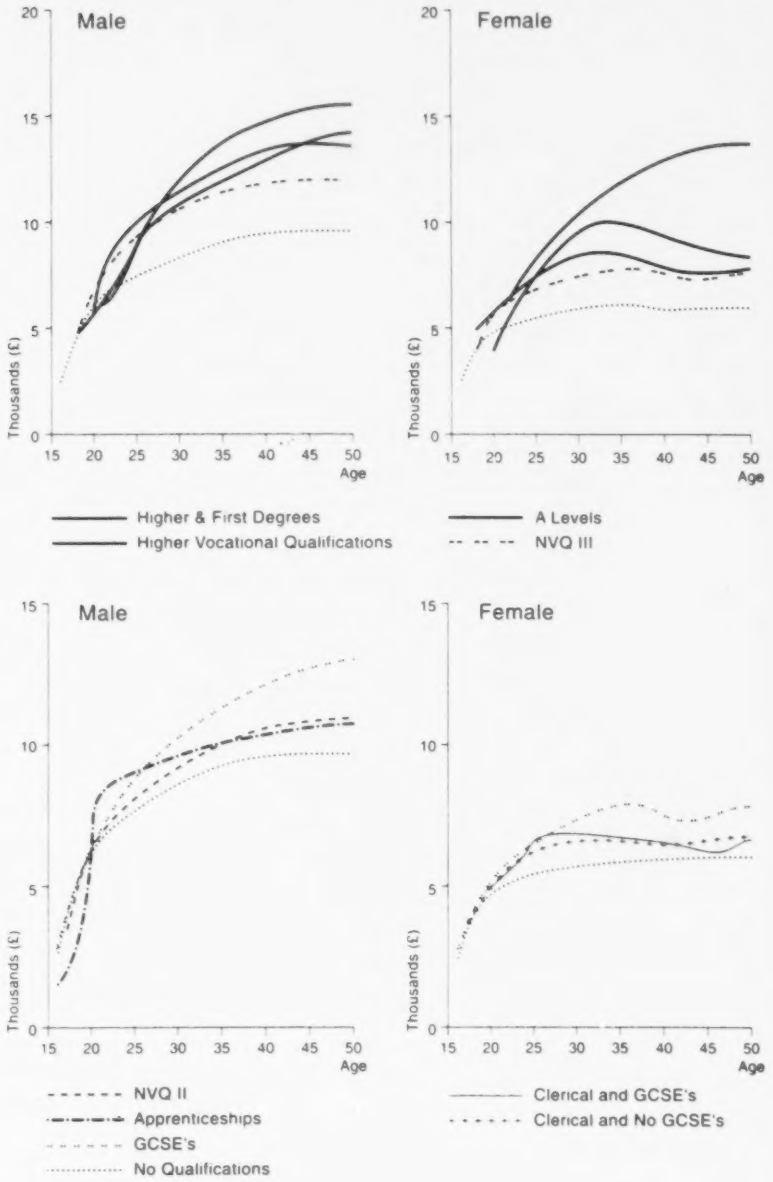
The labour market is rewarding some qualifications more than before. But that is not the end of the story. So far we have only looked at changes in the wage **benefits** individuals gain, evaluated at a single point in their lives. We must also assess the earnings benefits accumulated over a lifetime as well as the **costs**.

This section of the report explores:

- Expected lifetime earnings streams.
- Monetary returns to:
  - Vocational qualifications.
  - A levels.
  - Higher education.
- The influence of father's occupational status on lifetime earnings.

Using data on the net earnings of more than 20,000 actual individuals from the General Household Survey (GHS)* in 1985-1988, we estimate expected lifetime earnings profiles for a number of different academic and vocational qualifications [For a more detailed account, see the "Methods" section]. The main expected lifetime earnings profiles are illustrated in Figure 2.

Figure 2 Expected Lifetime Net Earnings (constant 1992 £s), full-time empoyees



Higher lifetime earnings

Figure 2 presents the lifetime earnings streams that young people might expect to receive, based on earnings received in the late 1980s, if they took different qualifications. For both males and females, higher and first degrees form the top group and those with no qualifications form the bottom group. Those who leave school with no qualifications can look forward to no increase, in real terms, in net earnings throughout their lives beyond their late- twenties. At the other extreme, university graduates can expect to see their net earnings rise steadily up to their mid-forties. High level vocational qualifications and A level holders do less well, especially after their mid- to late-twenties. For women, degrees mean much better lifetime salary prospects than high level vocational qualifications. For both men and women, GCSEs alone promise higher expected lifetime earnings than low level vocational qualifications.

Monetary returns

For ease of comparison, these lifetime earnings profiles have been translated in Figure 3 into discounted lifetime earnings and expected private rates of return. These calculations take into account the costs of education and training to see how far that changes the story. We also introduce different personal discount rates to see what difference it makes if young people put a high value on receiving their earnings as soon as possible. If they do not mind when they receive their earnings, they have a personal discount rate of zero. We also show results for a personal discount rate of 5 per cent — close to the real rate of return they could obtain on other long term market investments — and a high rate — reflecting a relatively high demand for immediate earnings — of 10 per cent.

In what follows, we look at the expected returns to be gained by taking each step along the road to higher qualifications. We compare low level vocational qualifications to having no qualifications, medium level qualifications to lower level ones, and higher level qualifications with medium ones. It should be remembered that the qualifications referred to are those taken by previous generations. But we give them modern titles (i.e. NVQs, GCSEs). The expected earnings figures cannot tell us what effect a new qualification will actually bring to a young person. Nonetheless, this is the information that he or she would have when looking at the earnings of their contemporaries and older friends and relatives.

Returns to vocational qualifications

The expected lifetime earnings for vocational qualifications (with the exception of apprenticeships) in Figure 3 are based on full-time mode of study completed in the prescribed length of time[6].

Figure 3 shows that the decision to pursue vocational qualifications provides significant additional expected earnings over and above those of the no qualifications group, even where personal discount rates are as high 10 per cent. This is true for both males and females. Unqualified school leavers can expect to experience a positive financial gain from obtaining even the lowest vocational qualification.

Unqualified females who invest in clerical qualifications stand to gain an expected rate of return of over 10 per cent. For males, an NVQ II yields an expected rate of return of 37 per cent compared to having no qualification. Each is well above the real rate

Figure 3
Decision Sphere with Discounted Lifetime Earnings (constant 1992 £s)

Note: The decision spheres illustrate the education and training choices available to 16 and 18 year olds, respectively, and the expected lifetime earnings associated with successful completion of the qualification. Discounted lifetime earnings figures represent the expected sum of real net earnings paid over a lifetime, where r is the personal discount rate. A discount rate of zero places equal weight on immediate and future earnings. A higher discount rate places greater weight on immediate earnings.
Source: Own calculations from raw GHS data files, 1985-88.

of return (around 5 per cent) on comparable market investments. Being unqualified does not make financial sense over a lifetime.

Within the hierarchy of vocational qualifications, traditional pursuits, such as craft apprenticeships for men and clerical qualifications for women, fall at the bottom of the lifetime earnings distribution. For individual's who obtain low-grade vocational qualifications, earnings prospects could be greatly enhanced by proceeding up the NVQ ladder. For men, the additional lifetime earnings associated with obtaining NVQ III qualifications translate into an expected private rate of return of roughly 12 per cent over and above NVQ II qualifications and apprenticeships. High level vocational qualifications provide an additional rate of return of more than 10 per cent, for both males and females, over and above NVQ III qualifications.

Key Finding:
Vocational training provides a significant return relative to the earnings of the no qualifications group, but not compared to GCSEs and A levels

Key Finding:
The average return to A levels, for both men and women, exceeds the real return on comparable market investments

Recent developments of government policy have sought to create a parity of esteem between vocational studies and traditional academic courses. However, based on our findings, parity in terms of expected lifetime earnings seems a long way off. Males with NVQ II qualifications can be expected to earn significantly less over their lifetime than their counterparts with GCSEs, though these are often regarded as being roughly equivalent qualifications. Similarly, for both males and females, expected lifetime earnings stemming from NVQ III qualifications generally fall short of those associated with A levels[9], and even fall short of GCSEs. As a result, to a qualified 16 year old, vocational qualifications can often be regarded as an unattractive option.

Returns to A levels

The expected rate of return to A levels, relative to GCSE qualifications, differs significantly for men and women (see Table 2). These results are conditional on passing at least one A level and gaining no further qualifications. Overall, women can expect an average rate of return to A levels alone of almost 10 per cent, compared to a rate of 6 per cent for males. In either case, this generally exceeds the real rate of return found on comparable market investments.

Table 2: Expected private real rates of return (per cent)

	Fathers' Occupational Group				
	Professional, Employer, Manager	Intermediate, Junior non-manual	Skilled, Semi-skilled manual	Unskilled manual	Overall (at sample mean)
Males					
A levels	10.41	-0.25	5.78	-0.90	6.04
Higher Education	4.00	7.95	6.10	25.10	7.08
Females					
A levels	4.85	15.32	10.59	13.49	9.80
Higher Education	6.28	5.15	5.33	8.42	5.84

Source: Own calculations from raw GHS data files, 1985-88

Returns to higher education

For the qualified 18-year old, our figures suggest that those who gain entry to higher education could expect a significant gain in lifetime earnings. Higher education provides an expected return which is slightly better than the return attached to other long-term market investments. On average, males can expect a rate of return to higher education of around 7 per cent, while women reap an expected rate of return of 6 per cent (see Table 2). These estimates are very much lower than the 25 per cent return used by government to justify the introduction of student loans [9].

The expected lifetime earnings figures in Figure 3 and private rates of return in Table 2 are not adjusted for possible spells of unemployment over the life-cycle. That is, we assume that individuals believe they will be employed on a full-time basis throughout their lifetime. Of course, this may not be the case, and the probability of unemployment may be dependent on past schooling and training decisions. The incidence of unemployment has been found to fall as qualification levels rise. In a sample of 36,000 individuals (not just full-time employees), unemployment rates ranged from 3 per cent, for women and men with higher education, to between 9 and 18 per cent for women and men, respectively, with no qualifications.

To adjust for unemployment effects, we applied the actual average unemployment rate, of each qualification group, to their respective lifetime earnings streams. Assuming that individuals form their expectations of the probability of unemployment in a similar fashion the adjustment increases the expected private rate of return for males to higher education and A levels by 4 and 2 percentage points, respectively, and by 1 and 2 percentage points, respectively, for women. The adjustment also markedly narrows the lifetime earnings differential between vocational qualifications and their academic equivalents, since individuals with vocational qualifications are observed to experience less incidence of unemployment than those with equivalent academic qualifications.

Key Finding:
The average expected return to higher education is 6-7%, which is slightly better than the return on comparable long-term investments, but considerably lower than the 25 per cent on which government policy is based

The influence of father's occupational status on lifetime earnings

A levels

For both men and women, the expected rate of return to A levels differs markedly by father's occupational status. Differing rates of return by father's occupational category may be capturing the impact of differences in individual ability — both actual and/or perceived by employers — on earnings. Measures of individual ability have been linked to family background. Differences by father's occupational group may also reflect differing employment opportunities, since family contacts are an important source of jobs.

For females, the highest expected rates of return are realized by individuals with non-professional/managerial fathers. Those from higher occupational families may be more able to land good jobs without the assistance of A level qualifications. For many young males, the expected return to A levels alone is quite modest. This reflects the fact that qualified school leavers are relatively well paid in Britain, thereby increasing the opportunity cost of staying-on, and the fact that career paths for those with A levels alone have proved to be limited.

Higher education

As with the returns to A levels, the expected rate of return to higher education varies by father's occupational group. This is particularly true for males. The highest expected returns of all are reaped by males who come from unskilled households. They are no less than 25 per cent! It may be that we should not place too much weight on these distinctions within the lower occupational categories, for they may merely reflect oddities in the GHS classifications. It may be sensible to average them out based on relative sample sizes. If we do so, we find that young males with non-professional/managerial fathers reap an expected private rate of return of 8.5 per cent. Males with professional/managerial fathers reap a much lower additional rate of return. This seems to reflect the fact that they had better alternative earnings opportunities facing them if they left education with A levels and did not bother with higher education.

Key Finding:
For males, the expected rate of return to A levels is higher for individuals from more skilled households. For females, the opposite is true

Key Finding:
The expected rate of return to higher education differs by father's occupational status, particularly for males. Expected returns for males from less skilled families exceed those from more skilled backgrounds

The expected returns are very high for the lower occupational groups, who make least use of post-compulsory education and training. This leaves us with an even bigger conundrum than when we began. If the expected returns to young people from less skilled households are so high, why are they represented to such a small extent in further and higher education?

IS MONEY ENOUGH?

Money is not the only consideration that influences young people in making their choices. People are also influenced by their evaluation of the risks involved and the value they put on them. The family context is important in influencing that evaluation as well affecting the decision directly. Since the 1950s, the importance of family background on school children's performance and their staying on decisions has been clear[1]. We do not attempt to repeat that earlier work. However, we can show that family background is of continuing importance even in the 1980s.

In this section of the report, we explore:

- Explanations of differences in preferences.
- Influences on men's choices.
- Influences on women's choices.
- The effects of time preference.

Explanations of differences in preferences

Genuine differences in preferences are possible. School leavers may have very different tastes and preferences. Some may:

- Not get any pleasure from staying on at school or attending a training course.
- Value earnings received early in their lives much more highly than those received later in life.
- Be highly "risk averse" since passing exams is a risky business and the consequences of failure are high. This may show up in individuals' requiring a higher rate of return to justify that risk.

For an individual, not to stay on for one or more of these reasons might be a perfectly rational decision.

On the other hand, an individual's choice may be distorted by at least two factors:

- Lack of information: this applies to all individuals, but there may be a special effect for young people from less skilled households who systematically have less information.
- Capital market imperfections may make it difficult for young people to borrow against their future earnings. One result of such constraints is behaviour that looks as though the individual has a high marginal rate of time preference. This outcome, however, is due to constraints, not choice. As with information, there may be a specific effect on young people from low skilled households who typically have less access to borrowing.

Such distortions create economic inefficiency: young people will make choices different from those which they would make if they had better information and/or improved access to borrowing or other forms of financial support. To the extent that information problems and capital market imperfections are also socially specific, they also create inequity.

Influences on men's choices

We have sought to assess the choice made by 16-year olds between three routes:

a) Stay in full-time education to pursue academic qualifications.

b) Leave school to pursue a vocational qualification.

c) Leave school and undertake no further qualifications.

Further information is contained in the "Methods" section. We assume that, knowing their capacities and other personal characteristics, individuals form an estimate of expected earnings resulting from each education, training and labour market option, and, taking into account their taste for each, choose the stream which offers the greatest net utility.

Our analysis shows that, even in the mid-1980s, the occupational status of the head of household remains a highly significant determinant of post-compulsory educational choices. Young men from non-manual households have a higher probability of staying in education at age-16 to take A levels than those from manual households. This is partly a reflection of the preferences and knowledge that young people from non-manual backgrounds bring to their decisions.

The level of education of parents increases the probability of staying on after age-16 over and above the influence of occupational status. For males, having a head of household with an A level qualification or above increases the probability of staying in education to take A levels. Other studies have found that the educational attainment of the mother is important. Once again, parents who have experienced post-compulsory education may be better informed or more likely to value the benefits, both pecuniary and non-pecuniary, of further education, than parents who have not.

Our analysis is less good at explaining the decision to pursue vocational qualifications. This covers a very heterogenous group of qualifications and skill levels. For males, having parents with A level qualifications or above increases the probability of taking vocational studies. Taken together with the result for the A level group, young men from relatively well educated households seem to have a higher probability of taking some form of post-compulsory education and training rather than none at all.

Key Finding:
The likelihood of a young man staying on until A level is significantly influenced by his parents' educational attainment and occupational status

After making allowance for the head of household's occupational group and education, we find that household income does not have any further explanatory power. This suggests that low household income, as such, is not an important factor in explaining low participation rates.

The post-16 decision may also be influenced by local labour market conditions. Our results show that regional unemployment rates have a significant positive effect on the decision to pursue A levels for males. That is, by lowering (raising) the opportunity cost of staying in school, an increase (decrease) in the regional unemployment rate increases (decreases) the probability of pursuing A levels. This seems to partially explain sharp increases in recent staying on rates.

Key Finding: Expected earnings differentials for males are not, at present, enough to overcome cultural and family influences

What is far more surprising is that once these background factors have been taken into account, differences in expected lifetime earnings seem to matter little in the post-16 decision. For males, an increase in expected lifetime earnings of an option increases the probability of choosing it, but the impact is not statistically significant. It seems that expected earnings differentials are not enough to overcome cultural and family influences.

Influences on women's choices

For females, the results are very different. The occupational status of the head of household and the regional unemployment rate have a similar significant influence to that found for men. However, given that the expected return to A levels for most females is extremely high, surprisingly few women in our sample pursued the A level option. Although the fairly steady rise in the demand for post-compulsory education from women in the past two decades seems to reflect the existing pattern of earnings incentives quite well, it is surprising that more young women have not pursued the seemingly attractive option of A level qualifications. There are two possible explanations:

Key Finding: Surprisingly few women stay on until A levels, given their high expected rate of return

- Preferences are distorted by lack of information or cultural attitudes.
- The female choice is complicated by the fact that many women choose, at some point, not to participate in the labour force. If there is a good chance that a woman will spend a significant amount of time outside the labour force, then the expected return to education and training may be much lower than the actual returns reaped by someone who remains in employment. Consequently, a woman may opt for alternatives which provide relatively immediate financial rewards.

The effects of time preference

Much depends on how individuals value immediate compared to future earnings. In the preceding analysis, we assumed that all individuals discount future earnings at the same rate. However, this simplification may be incorrect, and our results may reflect this. Different individuals may place different weights on future and immediate income. Discount rates may differ between family background groups as a result of differing parental and peer pressure which affect rates of time preference, or capital market imperfections. Those with the highest rates of discount will enter occupations with the highest immediate return and which take the least schooling, while the those with the lowest discount rates will end up in occupations which require the most schooling.

Survey evidence suggests that young people from less skilled households require a

higher earnings differential to enter further and higher education[12]. There are various explanations for this:

- There might be a genuine difference in tastes.
- The rate of return to staying on might be **perceived** to be lower by young people from less skilled households: for instance, because of lack of information, they might perceive the risk of failure to be higher than it is.
- The rate of return to staying on might **actually** be lower if (for cultural, family or other reasons) such young people derive lower consumption benefits form staying on or if, by staying on, they cut themselves off from their culture.

The second explanation, in particular, can create both inefficiency and inequity.

The lifetime earnings profiles that underlie our model suggest that it is not until an age of mid- to late-twenties that individuals begin to reap a net gain from further education or training. Thus for young people, mainly from manual-skill families, who have high discount rates and prefer their earnings early in life, a low staying-on rate is a perfectly rational outcome at age-16.

Summary of Key Findings

- *The low level of education and training in Britain is not primarily the result of supply constraints, but is caused by a low level of demand.*
- *The return to skilled labour is increasing, reflecting an increase in the demand for skilled labour relative to less-skilled labour.*
- *The returns to post-compulsory education and training are mixed. Staying on and obtaining a degree or a high vocational qualification generally enhances lifetime earnings. But low level vocational qualifications (and for many males even A levels) provide only a modest return. In some cases, the return to education and training may even be negative.*
- *The role of the family background and cultural factors is important. Young men are more likely to stay on until A level the more advanced are their head of household's (a) educational attainments, and (b) occupational status. Expected earnings differentials for males do not play a strong role in overcoming these cultural and family influences. Relatively few women stay on until A level given the very high expected rate of return. In general, though the returns to education are high for young people from less skilled households, their demand for additional education is low.*

POLICY IMPLICATIONS

The British post-compulsory education and training system is already undergoing fundamental changes. To be successful, these changes will need to go even further. In particular, they must seek to shift the thinking of young people, parents, employers and the government away from believing that age-16 is the **normal** conclusion to an individual's education. Our results point to a number of important ways in which policy can assist in this change.

Coordination

We have shown how the labour market and training and education systems are critically interrelated. The post-compulsory education and training system must be developed through a single policy: perhaps this can best be achieved through a single government department.

At present, the task is divided between the Department for Education and the Employment Department. Major improvements of coordination between these two departments have occurred, but ideally the functions should be merged. The aim should be to provide a smooth set of pathways from school irrespective of the route chosen — school or college based A levels or vocational

qualifications, or qualifications gained on the job. The routeways themselves have to be developed as a complete system with differentiation between qualification routes and accumulation and free transfer of qualifications that removes differences of prestige, style or administration. This requires a single coordinating authority.

A common system of financial support, that does not create perverse incentives between routes (for instance by favouring vocational studies at the expense of academic courses), is also necessary. Young people are the best decision takers, so long as they are fully informed. This, too, suggests a single government department to ensure a uniform treatment of the financial incentives.

Policy Recommendation: Coordination of the entire post-compulsory education and training system is essential. A single govenrment department is the best way to ensure this.

The role of employers

Much has been made of the need to place greater emphasis on post-compulsory vocational studies. The business community has been particularly vocal. The message is clear: in order to compete, we must improve the skill level of the British workforce. However, the financial incentives to pursue these courses contradict the message. While high vocational qualifications do offer attractive lifetime earnings prospects, the expected lifetime earnings associated with lower vocational qualifications, such as apprenticeships, NVQ IIs and clerical qualifications, generally fall below those of school leavers with only GCSEs. Employers do not seem to place a high value on low level vocational skills and, as a result, young people are acting rationally in not participating in training to the same extent as on the Continent. Quite simply, as long as some employers contradict the message through their pay and recruitment policies young people will continue to spurn such training.

Young people's earnings (measured as a proportion of adult earnings) in Britain are high by international standards[11]. Over the 1980s, despite high levels of unemployment, real earnings of unqualified individuals increased significantly in Britain, in sharp contrast to the steep decline in real earnings experienced by unqualified workers in the U.S.A. since the mid-1970s. Qualified school leavers are in even greater demand. Demographic changes over past decade may have hastened this phenomenon. The number of 16-18 year olds in Britain is forecast to continue to decline until the end of 1995. While the recent recession may have alleviated the problem in the short term, this decline in the supply of young workers will probably keep youth wages relatively high for the foreseeable future. As a result, the British labour market, combined with a highly selective and risky school system, provides ample incentive to leave school, particularly for young people who are qualified and/or place excessive weight on immediate earnings.

Policy Recommendation: Young people will pursue training only if employers encourage them through their recruiment and wage policies

If employers are serious about increasing skill levels, they, and their representative bodies, need to pay more attention to encouraging skill development through their recruitment and compensation polices. Wages should be commensurate with the returns (through higher productivity) the business receives from training. This is particularly important for people aged 16 to 19. Businesses have too often seen recruitment of unqualified school leavers as an easy option and have not always supplied the incentives for people to upgrade their qualifications. Considerable rigidities affect the wages that employers can offer. But for upgrading of training to take place, employers must provide realistic incentives.

Quality of training

The mixed results for lifetime earnings from vocational qualifications suggests that politicians should be cautious about the wholesale expansion of vocational training or about compulsory attendance at courses that bring little or no financial reward. It may be quite rational for young people not to take low level training, and for employers not to reward it. Any reforms to vocational training should concentrate on providing skills which are valued in the workplace. There may be a case for improved vocational training but it is more a matter of quality rather than extent, in our view.

Policy Recommendation: Reforms to vocational training should concentrate on quality skills that are valued in the workplace

High vocational qualifications do considerably enhance lifetime earning prospects. As many vocational routes as possible should lead to some form of high level vocational qualification or higher education. As a result, continuing the sustained development of the comprehensive system of NVQs seems a high priority. The widening that is already occurring of HE entry criteria to include good NVQ attainments should greatly increase the attractiveness of the vocational studies route and help to eliminate the traditional stigma surrounding vocational qualifications. But government policy needs to go further in encouraging an acceleration in HE take up of "non-traditional" routes of entry.

Policy Recommendation: Improved careers advice should present the lifetime earnings prospects of qualification routeways

Improving information

Low participation rates on the part of young people, particularly from less skilled households, might also stem from inadequate or misinterpreted information. Young people from families with lower skilled parents may lack peer and other support; they are likely to have less exposure to individuals with post-compulsory education experience. This lack of information breeds uncertainty. The myriad of existing vocational qualifications adds to the confusion. The immediate costs are evident to the individual, particularly of wages foregone. In comparison with immediate money in the pocket, longer term returns seem highly uncertain.

Policy Recommendation: Encourage equal esteem and parity of A levels with NVQs and GNVQ's

In the face of these pressures it is essential to provide information that offers clear and high quality advice on the returns associated with each available post-compulsory education and training option. The further reform of the Careers Service would appear as a high priority. Two developments are crucial: First, better involvement of businesses in the process of giving advice and keeping advisers up to date; second, student-focused assessment with career advisors responsible to the student, not to a particular school or college. These are important necessary conditions for improving the rationality of decisions at age-16 in order to provide a clear indication of the steps to entering higher education and the returns it offers. TECs have an important role to play in both developments. The present format of Careers Partnerships still leaves the TECs and their business boards in a weak position to ensure a strong enough link to employers who offer the signals of wage information on the skills they require.

Perception of risk

Low educational participation rates by young people from families with low skilled parents may reflect a higher perception of risk, combined with the obvious consequences of failing to reach higher education. The risks are real. Failure rates of around 30 per cent are normal for A level qualifications. On top of this, applications to higher education as a whole exceed acceptances.

If failure at A levels is suffered, or a student does not get a place in higher education, lifetime earnings prospects may not be greatly improved. For many young men, the return to A levels alone is quite

modest. This reflects the fact that career paths for those with A levels have proved to be limited and the opportunity costs of staying in school are high because of high youth wages.

Recent policy efforts may be having some effect. First, the planned expansion of higher education should reduce the perceived risk of failing to reach higher education. Already the number of HE places has increased from 0.9 million in 1985 to approximately 1.5 million in 1992. Second, recent policy initiatives aimed at broadening the post-school curriculum beyond that of traditional A levels may reduce the consequences of failing to reach higher education. The GNVQ should give to 18 year old school leavers a set of skills which employers see as relevant to a wide range of occupations, as well as a route to higher education. If employers are willing to reward these new skills accordingly, and HE accepts a GNVQ as a true equivalent to A levels, young people will have greatly reduced risks of staying on.

Other measures could also reduce the consequences and risk of failing to secure a place in higher education. Eighteen year old school leavers generally have little recourse to further training due to the fact that YT and most apprenticeships are closed after age-17. As a result, their career prospects are limited. These artificial age barriers should be eliminated so that transfer into programmes equivalent to YT is possible at any age.

Financial incentives

Reflecting the need to co-ordinate the entire post-compulsory education and training system, any financial incentives should be even handed between academic and vocational routeways. Moves towards a full system of training credits seems highly desirable. First, by being transferable, credits will eliminate the present distortion, due to the YT allowance, between full-time school, college education and part-time/training programmes. Secondly, credits may provide young people with an incentive to use their scarcity value to demand better training. Nonetheless, it is unlikely that training credits alone will alter the pattern of individual decisions dramatically. They must be combined with improved advice, changed incentives and the other recommendations we have outlined.

Funding the expansion of higher education

Our findings also have implications for the planned expansion of higher education. The government has sought to expand higher education, at least in part, by shifting more of the costs onto students by phasing out the maintenance grant and introducing a loans scheme. It did so under the impression that private rates of return were very high (estimates of 25 per cent) and that students could afford to pay a lot more. Our estimates suggest that the expected private rate of return to higher education as a whole may be much lower — in the order of 7 and 6 per cent for men and women, respectively. This suggests that the rate of return to higher education is close to the rate found on other comparable investment — around 5 per cent in real terms.

While still attractive, rates of return of 7 per cent give little scope for pay as you go self finance. Returns also differ for different families, and are particularly low for males from professional/managerial families — a prime user of higher education. At 4 per cent, any moves to raise further the private costs of entering higher education may cause the expected private rate of return to slip below that which a rational wealth maximiser might choose. Furthermore, more pressured and crowded higher education institutions may also lessen the non-pecuniary benefits that make higher education valuable to many.

Our estimates serve as a warning. The expected incremental return to higher education, over and above that found on other comparable investments, may not be as great as has been suggested. Any policy to shift the finance of higher education onto users may have a detrimental impact on demand. This applies to the shift from grants to loans or even more to charging top up fees. There may be good arguments for these policies, but they may not be compatible with a stimulating a rapid expansion of demand for higher education.

Methods

Our estimates use data derived from the General Household Survey (GHS). The GHS is a continuous annual survey of between ten and fifteen thousand households in Britain, and is available from1971-1988. In order to keep the analysis as relevant and as timely as possible, we limit ourselves to the most recent available years, 1985-88. The data include information on an individual's qualifications, work experience, father's occupational group, employment status and earnings.

The analysis has been broken into two parts: expected lifetime earnings regressions (Section 5), which attempt to replicate ***unobservable*** earnings expectations formulated at the time of the decision, and the estimation of reduced form and structural human capital choice models (Section 6).

We derive our estimates of expected lifetime earnings from a pooled cross-section of roughly 20,000 full-time employees drawn from the 1985-88 surveys. In effect, this approach assumes that, at the time of the decision, individuals expect their earnings to grow over a lifetime at the rate given by the cross-section (measured across cohorts rather than within a cohort) and that any unemployment will be involuntary. Based on evidence showing that socioeconomic characteristics influence measures of individual ability, we include father's occupational group in the earnings equations to control for acual and/or perceived differences in natural ability.

There are clearly limitations to our approach. For instance, earnings that have been associated with vocational training in the past may not hold in the future because the nature of the job requirements and the training provided has changed rapidly. Moreover, estimating expected lifetime earnings from historical data ignores future shifts in the supply of and demand for skilled labour, and the impact of economic growth, capital accumulation and business cycle effects on earnings. The calculations also ignore the obvious, but unobservable, consumption benefits derived from additional education or vocational studies. Nonetheless, our data closely resemble the information young people are likely to have available in making their decisions about prsuing post-compulsory qualifications.

The figures in Figure 3 and Table 2 are calculated on the basis that the only cost to the individual is forgone earnings and that individuals in higher education receive a graduated maintenance grant. The returns represent the average expected *joint* return to education, experience and socioeconomic background over a lifetime.

The choice model is estimated on a sample of roughly 600 18 and 19 year olds (roughly 300 males and 300 females) taken from the 1987 and 1988 surveys, respectively. These individuals would have made their initial post-compulsory choices in 1985. Their expected lifetime earnings are derived according to the earnings regressions discussed above.

A more detailed treatment of the methodology can be found in:

Bennett, R., Glennerster, H., and Nevison, D. (1992), "Investing in Skill:
To Stay on or Not to Stay on", Oxford Review of Economic Policy, Vol. 8, No. 2, pp. 130-145

Bennett, R., Glennerster, H., and Nevison, D. (1992), "Investing in Skill:
To Stay on or Not to Stay on", STICERD, Welfare State Programme, Discussion Paper WSP/74

Bennett, R., Glennerster, H., and Nevison, D. (1992), "Returns to Vocational Qualifications",
STICERD, Welfare State Programme, Discussion Paper WSP/83

Copies are available from The Welfare State Programme, STICERD, London School of Economics, Houghton Street, London, WC2A 2AE

Notes

1 Smithers, A., and Robinson, P. (1989), Increasing Participation in Higher Education, Manchester, School of Education, University of Manchester.

2 Whitfield, K., and Wilson, R.A. (1991), 'Staying on in Full-time Education: The Educational Participation Rate of 16 year-olds', Economica, 58, 391-404.

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5 The figures and much of the accompanying analysis is from Schmitt, J., 'The Changing Structure of Male Earnings in Britain, 1974-88', in R. Freeman and L. Katz (eds.), Changes and Differences in Wage Structures, Chicago, University of Chicago (forthcoming).

6 Blackburn, M., Bloom, D., and Freeman, R. (1989), 'The Declining Economic Position of Less Skilled American Men', in Burtless, G. (ed.), A Future of Lousy Jobs?, Washington, The Brookings Institution.

7 Material from the General Household Survey, made available through the Office of Population Censuses and Surveys and the ESRC Data Archive, has been used by permission of the Controller of HM Stationery Office.

8 Assuming the individual had a job, part-time study would lessen the opportunity cost of foregone earnings, but tuition fees would have to be covered by either the individual or his or her employer. It would also lengthen the duration of study, pushing the additional returns to the new qualification farther into the future. As a result, it is difficult to generalize how these factors would balance out over a lifetime.

9 The exception is the lifetime earnings of males with NVQ III qualifications, discounted at a rate of 10 per cent. This reversal reflects the fact that the male age-earnings profile for NVQ III qualifications lies above that for A levels until age-25. Thus, a high discount rate puts greater weight on this early positive earnings differential. It is difficult to know whether this pattern reflects a cohort effect (more recent NVQ IIIs do indeed pay more than contemporary A levels) which will persist over the most recent cohorts lifetime or simply a transitory advantage (due to the work-related aspects of the qualification) which dissipates around age-25.

10 Department of Education and Science (1988), Top-up Loans for Students, London, HMSO.

11 Halsey, A., Heath, A., and Ridge, J. (1980), Origins and Destinations: Family Class and Education in Modern Britain, Oxford, Clarendon Press.

12 Williams and Gordon (1981).

13 Prais, S.J. (1983), "Comments on Chapter Five", in P.E. Hart (ed.), Unemployment and Labour Market Policies, Aldershot, Gower., and Cassels, J. (1990), Britain's Real Skills Shortage, London, Policy Studies Institute.

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